Chapter 4725 Wells and Borings

PROPOSED REVISIONS TO MINNESOTA RULES, CHAPTER 4725

Preface

This is a DRAFT document. None of the changes are adopted or reflect current law.

The Minnesota Department of Health’s (MDH) proposed changes (or new language) are underscored. Existing language MDH proposes to remove or repeal is stricken with a strike-out.

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Minneapolis Rules, Chapter 4725

Wells and Borings

4725.0050 GENERAL

Statutory Authority: MS s 103I.101; 103I.221; 103I.301; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13

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4725.0100 DEFINITIONS.

Subpart 1. Scope. Terms used in this chapter that are defined in Minnesota Statutes, section 103I.005, have the meanings given in statute. For the purposes of this chapter, the terms defined in this part have the meanings given them.

Subp. 1a. Absorption area. "Absorption area" has the meaning in part 7080.1100, subpart 2, as proposed in State Register, Volume 31, Number 33, page 1025, published on February 12, 2007, and not yet adopted, and includes the area of soil designed to absorb sewage effluent.

Subp. 1b. Agricultural chemical. "Agricultural chemical" has the meaning in Minnesota Statutes, section 18D.01, subdivision 3.

Subp. 1c. Animal unit. "Animal unit" has the meaning in part 7020.0300, subpart 5, and is a unit of measure comparing the production of animal manure. One animal unit is equal to one slaughter steer, one horse, or for animals not listed in part 7020.0300, subpart 5, the average weight of the animal in pounds divided by 1,000.

Subp. 18. Repealed previous to this rulemaking

Subp. 19. Annular space. "Annular space" means the space between two cylindrical objects one of which surrounds the other, such as the space between a bore hole and a casing pipe, or between a casing pipe and liner pipe.

Subp. 20. [Repealed, 17 SR 2773]

Subp. 21. Aquifer. "Aquifer" means a stratum of saturated, permeable bedrock or unconsolidated material having a recognizable water table or potentiometric surface which is capable of producing water to supply a well.

Subp. 21a. At-grade. "At-grade" means the termination of a well or boring at the established ground surface.
Subp. 21b. **Bedrock.** "Bedrock" means a consolidated or coherent, hard, naturally formed aggregation of rock in the earth. Bedrock includes geologic materials deposited prior to the Cretaceous geologic period, and includes igneous and metamorphic rock such as granite, basalt, and iron formation, and sedimentary rock including sandstone, limestone, and shale. Bedrock includes sandstone formations such as the St. Peter or Jordan that may be semiconsolidated. Bedrock does not include alluvium, glacial drift, glacial outwash, glacial till, saprolite, or soil. For the purposes of this chapter, bedrock does not include mineral matter deposited during, or more recently than, the Cretaceous geologic period, or weathered portions of the formation surface where more than 50 percent of the parent bedrock is altered to an unconsolidated state.

Subp. 21c. **Bentonite.** "Bentonite" means an aluminum silicate clay that contains at least 85 percent of the mineral montmorillonite and meets API specification 13A-04.

Subp. 21d. **Bentonite grout.** "Bentonite grout" means water and a minimum of 15 percent by weight of powdered or granular bentonite, with no additives to promote temporary viscosity. An additional 15 percent by weight of either washed sand or cuttings taken from the bore hole may be mixed into the bentonite and water slurry. The bentonite must be designed by the manufacturer as a grout or well and boring sealant, and must be mixed according to the manufacturer’s specifications.

Subp. 21e. **Bored geothermal heat exchanger.** “Bored geothermal heat exchanger” has the meaning given in Minnesota Statutes, section 103I.005, subdivision 1a., and includes bored geothermal heat exchanger piping installed in a boring for thermal conductivity testing. Bored geothermal heat exchanger does not include a closed-loop piping system installed in a boring 10 feet or less below the established ground surface.

Subp. 21f. **Bored geothermal heat exchanger contractor.** “Bored geothermal heat exchanger contractor” means a person issued a limited well/boring contractor’s license for constructing, repairing, and sealing bored geothermal heat exchangers.

Subp. 21g. **Bored geothermal heat exchanger piping.** “Bored geothermal heat exchanger piping” means the pipe and fittings of a bored geothermal heat exchanger installed and buried below the ground surface and includes:

- the pipe loop installed in a bore hole;
- the buried pipe between a bore hole and a header or manifold;
- the buried header or manifold; and
- buried supply and return pipe between a buried header or manifold and the heat pump.

Subp. 21h. **Boring.** "Boring" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 2, and includes environmental bore holes, bored geothermal heat exchangers, and elevator borings, except that for the purposes of this chapter, "boring" does not include exploratory borings regulated under chapter 4727.
Subp. 22. **Casing.** "Casing" means a pipe or curbing placed in a well or boring to:

A. prevent the bore hole walls from caving;
B. seal off surface drainage; or
C. prevent gas, water, or other fluids from entering the well or boring except through the screen, open hole, or perforated casing.

Subp. 22a. **Casing vent.** "Casing vent" means an outlet at the upper terminal of a casing, cap, or cover to allow equalization of air pressure in the casing and escape of toxic or flammable gases when present.

Subp. 22b. **Cement-sand grout.** "Cement-sand grout" means a fluid mixture of Portland cement, sand, and water in the proportion of 94 pounds of Portland cement, not more than 1.0 cubic foot of dry sand, and not more than six gallons of water. Admixtures to reduce permeability or control setting time must meet ASTM Standard C494/C494M-04.

Subp. 22c. **Certified representative.** "Certified representative" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 2a, and means an individual who acts on behalf of a licensee or registrant.

Subp. 23. **Cesspool.** "Cesspool" means an underground pit into which raw household sewage or other untreated liquid waste is discharged and from which the liquid seeps into the surrounding soil.

Subp. 23a. **Community water system.** "Community water system" has the meaning given in Code of Federal Regulations, title 40, section 141.2, and means a public water system which serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.

Subp. 23b. **Completion of work.** "Completion of work" means the date on which the installation of the pump or pumping equipment is finished, the date on which construction of the well or boring is completed if a pump or pumping equipment is not installed by the person constructing the well or boring, the date that construction work regulated by this chapter is completed, the date the well or boring is put into service, or the date that the permit or notification expires, whichever occurs first.

Subp. 23c. **Concrete.** "Concrete" means a mixture of Portland cement, sand and gravel aggregate, and water so that one cubic yard of concrete contains a minimum of 470 pounds (five 94-pound bags) of Portland cement, a maximum of 30 gallons of water, and sand and gravel aggregate passing a one-inch sieve. Admixtures to reduce permeability or control setting time must meet ASTM Standard C494/C494M-04.

Subp. 24. [Repealed, 17 SR 2773]

Subp. 24a. **Confining layer.** "Confining layer" means a stratum of a geologic material that restricts vertical water movement. A confining layer includes:
A. a stratum at least ten feet in vertical thickness of unconsolidated materials or bedrock, that has a vertical hydraulic conductivity of $10^{-6}$ centimeters per second or less;
B. a stratum at least ten feet in vertical thickness of clay, sandy clay, or silty clay as defined by the United States Department of Agriculture in Handbook 18; or
C. a stratum at least ten feet in vertical thickness of the St. Lawrence or Eau Claire sedimentary bedrock formation, or a stratum at least two feet in vertical thickness of the Decorah or Glenwood sedimentary bedrock formation, as described in "Geology of Minnesota: A Centennial Volume" by Sims, P.K., and Morey, G.B., pages 459-473, "Paleozoic Lithostratigraphy of Southeastern Minnesota" by George Austin, which is incorporated by reference. The publication is available at the Minnesota Geological Survey, Minnesota Department of Health, or through the Minitex interlibrary loan program.

Subp. 24b. **Confining materials.** "Confining materials" means geologic materials that restrict vertical water movement. Confining materials include:

A. unconsolidated material or bedrock that has a vertical hydraulic conductivity of $10^{-6}$ centimeters per second or less;
B. clay, sandy clay, or silty clay as defined by the United States Department of Agriculture in Handbook 18 which is incorporated by reference; or
C. the Decorah, Glenwood, St. Lawrence, or Eau Claire sedimentary bedrock formations, as described in "Geology of Minnesota: A Centennial Volume" by Sims, P.K., and Morey, G.B., pages 459-473, "Paleozoic Lithostratigraphy of Southeastern Minnesota" by George Austin, which is incorporated by reference.

Subp. 24c. **Contact hour.** "Contact hour" means a minimum of 50 minutes of lecture, demonstration, workshop, or training excluding coffee breaks, registration, meals, or social activities.

Subp. 24d. **Council.** "Council" means the Advisory Council on Wells and Borings created under Minnesota Statutes, chapter 103I.

Subp. 24e. **Cuttings.** "Cuttings" means a mixture of drilling fluid, ground up rock, and unconsolidated material removed from a well or boring.

Subp. 24f. **Dewatering well.** "Dewatering well" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 4a. Dewatering well includes a temporary well for construction dewatering greater than 25 feet deep, and permanent dewatering wells. Dewatering well does not include:

A. a well 25 feet or less in depth for temporary construction dewatering;
B. a well used to lower groundwater levels for control or removal of groundwater contamination regulated as a remedial well; or
C. a drain tile, perforated pipe, sump, or pit less than ten feet deep, or less than ten feet below the floor of a basement, used to lower groundwater levels for construction or use of underground space.
Subp. 24g. **Dewatering well contractor.** "Dewatering well contractor" means a person issued a limited well/boring contractor's license to construct, repair, and seal dewatering wells.

Subp. 24h. **Directional drilling.** “Directional drilling” means a drilling method that utilizes a steerable drill bit to cut a bore hole for installing underground pipe. Directional drilling is also known as horizontal directional drilling or HDD.

Subp. 25. [Repealed, 15 SR 78]

Subp. 26. [Repealed, 17 SR 2773]

Subp. 26a. **Drilling machine.** "Drilling machine" means a motorized machine or mechanical device mounted on a truck, trailer, crawler, or skid used to excavate, drill, or bore a well or boring. A drilling machine includes a cable tool, hollow rod, auger, or rotary tool.

Subp. 26b. **Drive-point well.** "Drive-point well" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 5.

Subp. 26c. **Drive-point well or dug well contractor.** "Drive-point well or dug well contractor" means a person issued a limited well/boring contractor's license to construct, repair, or seal drive-point wells or dug wells.

Subp. 26d. **Driven casing.** "Driven casing" means steel casing forced into the ground as the well or boring is advanced, where the outside diameter of the drill bit or drilling tools is equal to or less than the outside diameter of the casing, casing coupling, or drive shoe.

Subp. 27. **Dug well.** "Dug well" means a well that is excavated or dug with unconventional drilling equipment in which the side walls may be supported by material other than standard weight steel casing, stainless steel casing, or plastic casing as specified in this chapter. Water enters a dug well through the side walls and bottom.

Subp. 27a. **Elevator boring.** "Elevator boring" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 6, and does not include cable elevators, hydraulic cylinders used to elevate automobiles, or holeless elevators where the depth of the excavation is less than ten feet below the lowest landing of the elevator.

Subp. 27b. **Elevator boring contractor.** "Elevator boring contractor" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 7.

Subp. 27c. **Environmental bore hole.** "Environmental bore hole" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 8. An environmental bore hole must enter or go through a water bearing layer, be deeper than 25 feet or penetrate a confining layer, and be used for testing or for remediation of soil or groundwater contamination without extracting water. An environmental bore hole includes excavations used to:

- measure groundwater levels, including an excavation used as a piezometer;
- determine groundwater flow direction or velocity;
C. measure earth properties such as hydraulic conductivity, bearing capacity, or resistance;
D. obtain samples of geologic materials for testing or classification; or
E. remove or remediate pollution or contamination from groundwater or soil through the use of a vent, vapor recovery system, or sparge point without extracting groundwater.

Subp. 28. Established ground surface. "Established ground surface" means the intended or actual finished grade (elevation) of the surface of the ground at the site of a well or boring.

Subp. 28a. Feedlot. "Feedlot" has the meaning given in part 7020.0300, subpart 3.

Subp. 29. [Repealed, 17 SR 2773]

Subp. 29a. Groundwater. "Groundwater" has the meaning given in Minnesota Statutes, section 115.01, subdivision 6, and does not include water in an artificially created basin, such as a tank excavation, that is not hydrologically connected to the earth outside the basin.

Subp. 29b. Groundwater thermal exchange device. "Groundwater thermal exchange device" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 11, and includes a water-supply well used to withdraw or inject groundwater for a heat pump.

Subp. 30. Grout. "Grout" means a low permeability material used to fill the annular space around a casing, or to seal a well or boring. Grout is either neat-cement grout, cement-sand grout, or bentonite grout.

Subp. 30a. [Repealed, 33 SR 211]

Subp. 30b. [Repealed, 17 SR 2773]

Subp. 30c. Hazardous substance. "Hazardous substance" has the meaning given in Minnesota Statutes, section 115B.02, subdivision 8.

Subp. 30d. Hoist. "Hoist" means a motorized machine or mechanical device that is not a drilling machine, mounted on a truck, trailer, crawler, or skid, which is used to:

A. remove or install a pump or pumping equipment, casing, screen, pitless adapter, or pitless unit;
B. remove an obstruction from a well or boring;
C. install a tremie pipe when sealing a well or boring; or
D. conduct an activity which requires a license or registration issued under this chapter. Hoist does not include hand-operated equipment such as a pipe wrench, chain, pulley, or tripod.

Subp. 30e. Holding tank. "Holding tank" has the meaning given in part 7080.1100, subpart 40, and means a watertight tank for storage of sewage until it can be transported to a point of approved treatment and dispersal.
Subp. 30f. **Hydrofracturing.** "Hydrofracturing" means the process of placing one or more packers into a bedrock formation and injecting potable water under pressures high enough to open existing fractures or create new fractures in the bedrock for the purpose of increasing the water yield.

Subp. 30g. **Individual well contractor.** "Individual well contractor" means an individual licensed according to Minnesota Statutes, section 103I.525.

Subp. 30h. **Interceptor.** "Interceptor" has the meaning given in part 4715.0100, subpart 66.

Subp. 30i. **Licensee.** "Licensee" means a person who is licensed as a well contractor, limited well/boring contractor, or elevator boring contractor under this chapter and Minnesota Statutes, chapter 103I.

Subp. 30j. **Limited well/boring contractor.** "Limited well/boring contractor" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 12, and includes a person with a license to: construct, repair, or seal drive-point wells or dug wells; install or repair screens or pitless units or adapters and casing from the pitless unit or adapter to the upper termination of the casing; install a well pump or pumping equipment; seal wells or borings; construct, repair, or seal a dewatering well; or construct, repair, or seal a bored geothermal heat exchanger.

Subp. 30k. **Manure storage area.** "Manure storage area" has the meaning given in part 7020.0300, subpart 14, and does not include a manure storage basin.

Subp. 30l. **Manure storage basin.** "Manure storage basin" means a lagoon, pit, impoundment, or excavation in the ground used to store liquid and solid manure.

Subp. 30m. **Monitoring well.** "Monitoring well" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 14.

Subp. 30n. **Neat-cement grout.** "Neat-cement grout" means a fluid mixture in the proportion of 94 pounds of Portland cement and not more than six gallons of water. Bentonite up to five percent by weight of cement (4.7 pounds of bentonite per 94 pounds of Portland cement) may be used to reduce shrinkage. Not more than 0.6 additional gallons of water may be added for each one percent of bentonite. Admixtures to reduce permeability or control setting time must meet ASTM Standard C494/C494M-04. The minimum density of neat-cement grout using regular (Type 1) Portland cement without bentonite or entrained air is 15.0 pounds per gallon.

The minimum density of regular neat-cement grout with bentonite and without entrained air is:

- A. 14.7 pounds per gallon for neat-cement grout and two percent bentonite;
- B. 14.4 pounds per gallon for neat-cement grout and three percent bentonite;
- C. 14.1 pounds per gallon for neat-cement grout and four percent bentonite; and
- D. 13.8 pounds per gallon for neat-cement grout and five percent bentonite.

Subp. 30o. **Noncommunity water system.** "Noncommunity water system" means a public water system that serves an average of at least 25 persons daily at least 60 days a year, at a
place other than their home, and that is not a community public water system. Any water system meeting the criteria identified in this subpart that serves churches, schools, resorts, parks, camps, rest areas, or businesses is deemed to be a noncommunity water system.

Subp. 30p. **Ordinary high water level.** "Ordinary high water level" has the meaning given in Minnesota Statutes, section 103G.005, subdivision 14.

Subp. 30q. **Pasture.** "Pasture" has the meaning given in part 7020.0300, subpart 18.

Subp. 30r. **Person.** "Person" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 16.

Subp. 30s. **Petroleum.** "Petroleum" has the meaning given in Minnesota Statutes, section 115C.02, subdivision 10.

Subp. 31. [Repealed, 15 SR 78]

Subp. 31a. **Petroleum bulk storage site.** "Petroleum bulk storage site" means a property on which petroleum products are stored for sale and excludes pipeline terminals and refineries.

Subp. 31b. [Repealed, 17 SR 2773]

Subp. 32. **Pitless adapter.** "Pitless adapter" means a watertight device allowing discharge through one or more openings of a casing.

Subp. 33. **Pitless unit.** "Pitless unit" means a watertight assembly with a cap that attaches to a casing below ground, allows subsurface discharge through one or more openings, and extends the upper termination of the casing above the established ground surface.

Subp. 34. **Pollution or contamination.** "Pollution" or "contamination" means the presence or addition of any substance to groundwater which is or may become injurious to the health, safety, or welfare of the general public or private individuals using a well, boring, or groundwater; or which is or may become injurious to domestic, commercial, industrial, agricultural, or other uses which are being made of such water.


Subp. 35. **Potable water.** "Potable water" means water which is safe for human consumption in that it is free from impurities in amounts sufficient to cause disease or harmful physiological effects.

Subp. 35a. **Potable water-supply well.** "Potable water-supply well" means a water-supply well used to provide water to humans for such purposes as drinking; cooking; bathing; manufacturing or processing of food, drink, or pharmaceuticals; or to supply water to plumbing fixtures accessible to humans.
Subp. 36. **Pressure tank or hydropneumatic tank.** "Pressure tank" or "hydropneumatic tank" means a closed water storage container constructed to operate under a designed pressure rating to modulate the water system pressure within a selected pressure range.

Subp. 37. **Priming.** "Priming" means the first filling of a pump with water and the action of starting the flow in a pump.

Subp. 37a. **Public water-supply well.** "Public water-supply well" means a well supplying water to a public water system.

Subp. 37b. **Public water system.** "Public water system" means a community or noncommunity water system regulated under chapter 4720.

Subp. 38. [Repealed, 17 SR 2773]

Subp. 39. [Repealed, 17 SR 2773]

Subp. 40. **Pumping water level.** "Pumping water level" means the distance measured from the established ground surface to the water surface in a well being pumped at a specified rate for a specified period of time.

Subp. 40a. **Rapid setting cement.** "Rapid setting cement" means a Type III Portland cement as designated in ASTM Standard C150-04a, an API Class C cement, or any Portland cement containing calcium chloride or sodium chloride in an amount between two and four percent by weight of Portland cement, or gypsum in an amount between 20 and 100 percent by weight of Portland cement.

Subp. 40b. **Regional flood.** "Regional flood" has the meaning given in Minnesota Statutes, section 103F.111, subdivision 10.

Subp. 41. [Repealed, 15 SR 78]

Subp. 41a. **Registrant.** "Registrant" means a person who is registered as a monitoring well contractor under this chapter and Minnesota Statutes, chapter 103I.

Subp. 41b. **Remedial well.** "Remedial well" means a water-supply well used to lower a groundwater level to control or remove contamination in groundwater and excludes horizontal trenches, and sumps or pits less than ten feet deep.

Subp. 41c. [Repealed, 33 SR 211]

Subp. 41d. **Rock.** "Rock" means a naturally formed aggregation of mineral matter including the rocks described in part 4725.1851, subpart 4, item B.

Subp. 41e. **Sand.** "Sand" means unconsolidated mineral material composed principally of quartz ranging in size from 0.0025 to 0.040 inches in diameter.
Subp. 41f. Scrap yard. "Scrap yard" means an establishment, place of business, or place of storage or deposit that is maintained, operated, or used for storing, keeping, buying, or selling scrap, junk, or waste metal obtained from automobiles, trucks, tractors, farm equipment, industrial equipment, containers, appliances, or similar items where the total scrap metal stored is greater than nine tons or consists of more than five motor vehicles.

Subp. 41g. Screen. "Screen" means a wire-wrapped, gauze, shutter, slotted, or engineered perforated pipe at the bottom of a casing designed to allow water to enter a well or boring and to prevent sediment from entering the well or boring.

Subp. 41h. Screen leader or riser. "Screen leader" or "riser" means a pipe smaller in diameter than the casing that is attached to the top of a screen and telescoped into a casing.

Subp. 41i. Screen sump. "Screen sump" means a pipe attached to the bottom of a screen.

Subp. 41j. Sealing. "Sealing" means the process of preparing a well or boring to be filled with grout and the process of filling a well or boring with grout.

Subp. 42. [Repealed, 33 SR 211]

Subp. 43. Seepage pit, leaching pit, or dry well. "Seepage pit," "leaching pit," or "dry well" means an underground pit, tank, or receptacle into which a septic tank discharges effluent or other liquid waste and from which the liquid seeps into the surrounding soil through the bottom or openings in the side of the pit, tank, or receptacle.

Subp. 43a. Sensitive water-supply well. "Sensitive water-supply well" means a water-supply well with less than 50 feet of watertight casing where the casing does not penetrate a confining layer or multiple layers of confining materials with an aggregate thickness of ten feet or more.

Subp. 44. Septic tank. "Septic tank" means a watertight tank of durable materials through which sewage flows very slowly and in which solids separate from the liquid to be decomposed or broken down by bacterial action.

Subp. 44a. Sewage. "Sewage" has the meaning given in Minnesota Statutes, section 115.01, subdivision 17, and includes gray water discharge from bathing and laundry.

Subp. 44b. Sewage sump. "Sewage sump" means a sump, dosing chamber, lift station, tank, pit, or receptacle which contains a pump to discharge sewage.

Subp. 45. Sewer. "Sewer" means a pipe or conduit carrying sewage or into which sewage may back up, including floor drains and traps.

Subp. 45a. Soil dispersal system. "Soil dispersal system" has the meaning given in part 7080.1100, subpart 79, and means the piping and media such as gravel, where sewage effluent is treated and dispersed into the soil by percolation and filtration and includes trenches, seepage beds, drainfields, at-grade systems, and mound systems.
Subp. 46. [Repealed, 33 SR 211]

Subp. 47. **Static water level.** "Static water level" means the distance measured from the established ground surface to the water surface in a well or boring neither being pumped, nor under the influence of pumping nor flowing under artesian pressure.

Subp. 47a. **Storm water drain pipe.** "Storm water drain pipe" means a pipe or conduit carrying storm water or surface water from a building roof, parking lot, street, or paved area. Storm water drain pipe does not include a pipe or conduit carrying:

A. domestic waste water, sewage, or industrial wastes;
B. clear water drainage from building perimeter drain tile; or
C. water from a floor drain, not connected to a sewer, to a point of surface discharge.

Subp. 48. **Subterranean gas.** "Subterranean gas" means a gas occurring below the land surface. It may be flammable such as methane or highly toxic as hydrogen sulfide and may be associated with ground water.

Subp. 49a. **Suction line.** "Suction line" means a pipe or line connected to the inlet side of a pump or pumping equipment or any connection to a casing that may conduct nonsystem water into the well or boring because of negative pressures.

Subp. 49. **Thermally enhanced bentonite grout.** "Thermally enhanced bentonite grout" means a bentonite-based grout that is mixed with sand or graphite to improve the thermal efficiency of a bored geothermal heat exchanger system.

Subp. 49a. [Repealed, 17 SR 2773]

Subp. 49b. **Total coliform bacteria.** "Total coliform bacteria" means all of the aerobic and facultative anaerobic, gram-negative, non-spore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 degrees centigrade.

Subp. 49c. **Tremie pipe.** "Tremie pipe" means a pipe or hose used to insert grout into an annular space, well, or boring.

Subp. 49d. **Unconsolidated materials.** "Unconsolidated materials" means geological materials that are not bedrock and includes alluvium, glacial drift, glacial outwash, glacial till, lacustrine deposits, loess, saprolite, soil, and those materials specified in part 4725.1851, subpart 4, item A.

Subp. 49e. **Bored geothermal heat exchanger.** "Bored geothermal heat exchanger" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 1a.

Subp. 49f. **Bored geothermal heat exchanger contractor.** "Bored geothermal heat exchanger contractor" means a person issued a limited well/boring contractor's license for constructing, repairing, and sealing bored geothermal heat exchangers.
Subp. 49g. Bored geothermal heat exchanger piping. "Bored geothermal heat exchanger piping" means a sealed piping system containing a heat transfer fluid, installed vertically in the ground, used to transfer heat to or from the surrounding earth.

Subp. 49b. Wastewater treatment unit. "Wastewater treatment unit" has the meaning given in part 7045.0020, subpart 103.

Subp. 50. [Repealed, 17 SR 2773]

Subp. 50a. Water-supply well. "Water-supply well" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 20a, and includes wells used:

A. for potable water;
B. for irrigation;
C. for agricultural, commercial, or industrial water supply;
D. for heating or cooling;
E. as a remedial well; or
F. for testing water yields for irrigation, commercial or industrial uses, residential supply, or a public water system.

Subp. 50b. Water table. "Water table" has the meaning given in part 7060.0300, subpart 8.

Subp. 51. Well. "Well" has the meaning given in Minnesota Statutes, section 103I.005, subdivision 21, and includes water-supply wells, monitoring wells, and dewatering wells.

Subp. 51a. Well pump or pumping equipment. "Well pump or pumping equipment" means a device, machine, or material used to withdraw or otherwise obtain water from a well, and all necessary seals, fittings, and pump controls. Well pump or pumping equipment does not include:

A. water tanks except for buried pressure tanks;
B. sampling devices placed in a monitoring well to obtain a water sample and are then removed after the sample is collected; or
C. devices used in the construction or rehabilitation of a well.

Subp. 52. [Repealed, 17 SR 2773]

Subp. 53. [Repealed, 17 SR 2773]

Subp. 54. [Repealed, 17 SR 2773]

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 156A.01 to 156A.08; 157.04; 157.08; 157.09; 157.13

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4725.0150 INCORPORATIONS BY REFERENCE AND ABBREVIATIONS.

This part indicates documents, specifications, and standards that are incorporated by reference in this chapter. This material is not subject to frequent change, and is available from the source listed, for loan or inspection from the Barr Library of the Minnesota Department of Health, or through the Minitex interlibrary loan system. The abbreviations listed in parenthesis after the source name are used in this chapter.


   (2) API Standard 5L-04, "Specification for Line Pipe."

C. American National Standards Institute (ANSI), 1430 Broadway 25 West 43rd Street, New York, New York 10018. 10036,
   (1) ANSI Schedule 5 and Schedule 40, "Dimensions of Welded and Stainless Steel Pipe" as contained in ASA Standard B36.19 - 1965, "Welded and Seamless Wrought Steel Pipe."
   (2) ANSI Standard Z34.1-1993, "Third Party Certification Programs for Products, Processes, and Services."


E. American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.
   (1) ASTM A53/A53M-04a, "Standard Specifications for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless."
   (3) ASTM A312/A312M-04b, "Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes."
   (7) ASTM D2487-00, "Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)."
   (8) ASTM D2683-14, “Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.”
(9) ASTM D3035-03a15, "Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter."

F. American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80235, ANSI/AWWA C219-01, "Bolted, Sleeve-Type Couplings for Plain-End Pipe."
G. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, NFPA 30, “Flammable and Combustible Liquids Code, 2015 Edition.”
H. NSF International, 789 Dixboro Road, P.O. Box 130140, Ann Arbor, Michigan 48113.
   (2) ANSI/NSF 60-2003e2016, "Drinking Water Treatment Chemicals - Health Effects."
   (3) ANSI/NSF 61-2003e, "Drinking Water System Components - Health Effects."
   (4) NSF White Book™ – Nonfood Compounds Listing Directory.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13
History: 17 SR 2773; 33 SR 211
Published Electronically: September 2, 2008

4725.0200 APPLICATION TO ALL WELLS AND BORINGS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.0200) to review current rule language.

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This document may be made accessible upon request to health.wells@state.mn.us.
4725.0250 ENFORCEMENT.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.0250) to review current rule language.

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4725.0300 [Repealed, 17 SR 2773]

Published Electronically: September 2, 2008

4725.0350 FEES APPLICABLE TO THIS CHAPTER.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.0350) to review current rule language.

Published Electronically: October 2, 2015

4725.0400 [Repealed, 15 SR 1597]

Published Electronically: September 2, 2008

4725.0410 VARIANCE.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.0410) to review current rule language.

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4725.0450 [Repealed, 17 SR 2773]

Published Electronically: September 2, 2008

LICENSING AND REGISTRATION

4725.0475 ACTIVITIES REQUIRING LICENSURE OR REGISTRATION.

Subpart 1. Activity requiring licensure or registration. Except for those persons exempted under Minnesota Statutes, section 103I.205, subdivision 4, paragraph (e), a person must hold a license or registration issued by the commissioner to:

A. construct, repair, modify, or seal a well or boring;
B. construct or seal a bored geothermal heat exchanger or groundwater thermal exchange device;
C. construct, repair, or seal an elevator boring;
D. install a well pump or pumping equipment;
E. install, modify, or remove a screen, pitless unit, or pitless adapter; or
F. modify or materially affect the yield, water quality, diameter, depth, or casing of a well or boring including:
   (1) attachment of water conditioning or other devices to the casing of the well or boring;
   (2) chemical treatment of the well or boring with acid or other chemicals;
   (3) development or stimulation of a well or boring including the use of explosives or hydrofracturing; or
   (4) termination of a monitoring well, environmental bore hole, remedial well, or dewatering well casing at-grade, including installation or modification of the protective manhole or vault as required in part 4725.6850.

Subp. 2. Exceptions to licensure or registration. Nothing in this part shall prohibit:

A. a person from placing a water sampling device including a well pump or pumping equipment in a monitoring well or remedial well to obtain a water sample if the device is immediately removed after the sample is collected;
B. a plumber or plumbing contractor from installing and servicing a water service pipe according to chapter 4714, from the source of supply;
C. a water conditioning contractor from installing water conditioning equipment within a building according to chapter 4714;
D. a limited well/boring contractor from repairing, installing a pump or pumping equipment, or repairing or sealing a well that the limited well/boring contractor is licensed to construct; and
E. a water-supply system operator certified under chapter 9400 or the owner of a transient, noncommunity water system from disinfecting the public well they are directly responsible for, according to part 4725.5550.

Subp. 3. Well contractor license. A person must be licensed as a well contractor to:

A. construct, repair, modify, or seal a well or boring except exploratory borings;
B. install a pump or pumping equipment; and
C. any of the activities in subpart 1, item F.

Subp. 4. Limited well/boring contractor licenses. A person performing any of the activities in items A to F must have either a well contractor's license or have a separate limited well/boring contractor license for each of the limited licensure areas listed in items A to F:

A. limited licensure to construct, repair, modify as specified in subpart 1, item F, or seal a dug well or drive-point well;
B. limited licensure to install, modify, or repair screens, pitless units or adapters, and casings from the frost line or pitless unit or adapter to the upper termination of the casing;
C. limited licensure to install a well pump or pumping equipment, or any of the activities in subpart 1, item F, subitems (1) and (2);
D. limited licensure to seal wells or borings, remove obstructions from a well or boring before sealing, remove or perforate casing before sealing, or other activities to seal a well or boring, except that a drive-point well or dug well contractor may seal a dug well or drive-point well, a dewatering well contractor may seal a dewatering well, an elevator boring contractor may seal an elevator boring, a bored geothermal heat exchanger contractor may seal a bored geothermal heat exchanger, and a monitoring well contractor may seal a monitoring well or environmental bore hole;

E. limited licensure to construct, repair, seal, or modify as specified in subpart 1, item F, a dewatering well; or

F. limited licensure to construct, repair, seal, or modify as specified in subpart 1, item F, a bored geothermal heat exchanger.

Subp. 5. Elevator boring contractor license. A person must have an elevator boring contractor's license or a well contractor's license to construct, repair, or seal an elevator boring.

Subp. 6. Monitoring well contractor registration. A person must be either licensed as a well contractor or registered as a monitoring well contractor to:

A. construct, repair, modify, or seal monitoring wells or environmental bore holes; or

B. install pumps in monitoring wells.

A person with a limited well/boring contractor license to install a well pump or pumping equipment may install pumps in monitoring wells.

Subp. 7. Individual well contractor license. A person who is licensed as an individual well contractor must meet the requirements for licensure for a well contractor, except the requirements for a bond as specified in part 4725.1250.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13

History: 17 SR 2773; 25 SR 1207; 33 SR 211; L 2013 c 108 art 12 s 108; L 2014 c 275 art 1 s 136; 40 SR 71

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4725.0500 [Repealed, 17 SR 2773]

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4725.0550 CERTIFIED REPRESENTATIVE OR INDIVIDUAL WELL CONTRACTOR.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.0550) to review current rule language.

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4725.0600 [Repealed, 15 SR 78]

Published Electronically: September 2, 2008

4725.0650 EXPERIENCE REQUIREMENTS; CERTIFIED REPRESENTATIVE AND INDIVIDUAL WELL CONTRACTOR.

Subpart 1. **Well contractor certified representative and individual well contractor.** Anyone applying to be certified as a representative of a well contractor or to be an individual well contractor must have four years of experience. A year of experience is a year in which the applicant personally, and under the supervision of a licensed well contractor:

A. worked for a minimum of 1,000 hours. The applicant's 1,000 hours of experience must include drilling water-supply wells, grouting, sealing wells, repairing wells, installing pumps, disinfecting wells, and completing well construction and sealing records; and

B. constructed a minimum of ten water-supply wells; or

C. constructed at least one or more multiple cased water-supply wells with an outer casing diameter of ten inches or more and a well depth or cumulative depth of 700 feet or more.

An applicant with experience prior to 2006 must have constructed a minimum of five water-supply wells per year.

An applicant shall be deemed to have one year of experience if the applicant has successfully completed one year of education in well construction practices at an accredited college, university, or postsecondary institution. An applicant shall be deemed to have up to a maximum of two years of experience if the applicant has successfully completed an associate or technical degree in well construction practices at an accredited college, university, or postsecondary institution. Supervision is not equivalent to personally doing the work.

Subp. 2. **Monitoring well contractor certified representative.** Anyone applying to be certified as a representative of a monitoring well contractor must meet the requirements in items A to C, or meet the requirements in item D.

A. The applicant must be:

   (1) a professional engineer licensed by the Minnesota State Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design according to Minnesota Statutes, sections 326.02 to 326.15;

   (2) a hydrologist or hydrogeologist certified by the American Institute of Hydrology;

   or

   (3) a geologist certified by the American Institute of Professional Geologists, or a geoscientist licensed by the Minnesota State Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design under Minnesota Statutes, sections 326.02 to 326.15.
B. The applicant must have three years of experience. A year of experience is a year in which the applicant worked a minimum of 500 hours in construction, repair, and sealing of monitoring wells, or environmental bore holes including design, field supervision, or actual construction.

C. The applicant must have designed, field supervised, or actually constructed 50 monitoring wells or environmental bore holes.

D. The applicant must have three years of experience in construction, repair, and sealing of monitoring wells and environmental bore holes. A year of experience is a year in which the applicant, personally and under the supervision of a registered monitoring well contractor or licensed well contractor, constructed a minimum of 20 monitoring wells or environmental bore holes, of which at least five must be monitoring wells, and constructed, sealed, and repaired monitoring wells or environmental bore holes for 1,000 hours.

Subp. 3. **Limited well/boring contractor certified representative; drive-point wells or dug wells.** Anyone applying to be certified as a representative for a limited well/boring contractor licensed to construct, repair, and seal dug wells and drive-point wells must have three years of experience. A year of experience is a year in which the applicant personally constructed five dug wells or drive-point wells and worked for a minimum of 1,000 hours constructing, repairing, or sealing dug wells or drive-point wells, and installing pumps in dug wells or drive-point wells. An applicant must have gained the experience under a licensed well contractor or a licensed drive-point well or dug well contractor.

Subp. 4. **Limited well/boring contractor certified representative; well screens, pitless adapters, and pitless units.** Anyone applying to be certified as a representative for a limited well/boring contractor licensed to install or repair well screens or pitless adapters or units and well casing from the pitless device to the upper termination of the well must have two years of experience. A year of experience is a year in which the applicant worked a minimum of 1,000 hours and personally installed or repaired five well screens or pitless units or adapters and well casings from the pitless unit or adapter to the upper termination of the well. The experience must have been gained under the supervision of a licensed well contractor or limited well/boring contractor licensed to install or repair well screens or pitless units or adapters and well casings from the pitless unit or adapter to the upper termination of the well.

Subp. 5. **Limited well/boring contractor certified representative; pumps and pumping equipment.** Anyone applying to be certified as a representative for a limited well/boring contractor licensed to install a pump or pumping equipment must have two years of experience in pump installation and repair. The applicant must have personally installed 20 pumps. The work must include a minimum of 1,000 hours installing well pumps or pumping equipment.

Subp. 6. **Limited well/boring contractor certified representative; well sealing.** Anyone applying to be certified as a representative for a limited well/boring contractor licensed to seal wells must have three years of experience. A year of experience is a year in which the applicant:

A. personally sealed a minimum of five wells; and

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B. worked a minimum of 1,000 hours constructing wells, clearing obstructions, removing or perforating well casings, and grouting wells.

The applicant must have gained the experience under a licensed well contractor or limited well/boring sealing contractor.

Subp. 7. Limited well/boring contractor certified representative; dewatering wells. Anyone applying to be certified as a representative for a limited well/boring contractor licensed to construct, repair, or seal dewatering wells must have two years of experience. A year of experience is a year in which the applicant:

A. worked a minimum of 500 hours designing, constructing, or field supervising the construction, repair, or sealing of dewatering wells; and
B. designed, constructed, or field supervised the construction of a minimum of five dewatering wells.

Subp. 7a. Limited well/boring contractor certified representative; bored geothermal heat exchanger. Anyone applying to be certified as a representative for a limited well/boring contractor licensed to construct, repair, or seal bored geothermal heat exchangers must meet the requirements in items A or meet the requirements in items B and C.

A. The applicant must have two three years of experience constructing, repairing and sealing bored geothermal heat exchangers. A year of experience is a year in which the applicant personally, and under the supervision of a licensed well contractor or licensed bored geothermal heat exchanger contractor:

1. constructed a minimum of at least three separate permitted bored geothermal heat exchanger systems;
2. with a minimum total footage of constructed at least 2,000 feet of bored geothermal heat exchanger bore hole; and
3. worked a minimum of at least 500 hours designing, constructing, or field supervising the construction, repair, or sealing of bored geothermal heat exchangers.
4. Experience must be obtained under the supervision of a licensed well contractor or licensed bored geothermal heat exchanger contractor, except that experience obtained in construction of directionally drilled bored geothermal heat exchanger systems not regulated by this chapter at the time of construction shall be counted towards an applicant’s experience, whether or not the work was done under the supervision of a licensed well contractor or licensed bored geothermal heat exchanger contractor.

B. The applicant must:

1. have a minimum of two three years of experience in well drilling. A year of experience is a year in which the applicant personally and under the supervision of a licensed well contractor:
   a. constructed a minimum of five at least 10 water-supply wells; and
b. constructed, repaired, or sealed worked at least 1,000 hours constructing, repairing or sealing wells and environmental bore holes; and

(2) The applicant must be certified accredited by the International Ground Source Heat Pump Association or certified by the National Ground Water Association as a ground source heat pump driller or installer, or have an equivalent certification, as determined by the commissioner, based on number of hours of training, subject material, and testing.

Subp. 8. Elevator boring contractor certified representative. Anyone applying to be certified as a representative for an elevator boring contractor licensed to construct, repair, or seal an elevator boring must have two years of experience related to the construction, repair, and sealing of elevator borings. A year of experience is a year in which the applicant designed, supervised, or actually constructed three elevator borings.

Subp. 9. Experience outside state. If all or part of the experience required in this part was gained by an applicant outside Minnesota, the applicant must provide the commissioner with information satisfactorily demonstrating that the experience was gained constructing, repairing, and sealing wells or borings in geological conditions substantially similar to conditions in Minnesota and in a jurisdiction with certification, licensing, or registration requirements comparable to those in Minnesota.

Statutory Authority: MS 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13
History: 17 SR 2773; L 1992 c 507 s 2; 25 SR 1207; 33 SR 211; L 2013 c 108 art 12 s 108; L 2014 c 275 art 1 s 136
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4725.0700 [Repealed, 17 SR 2773]
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4725.0800 [Repealed, 15 SR 78]
Published Electronically: September 2, 2008

4725.0900 COUNCIL EVALUATION OF APPLICANTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.0900) to review current rule language.

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4725.1000 [Repealed, 17 SR 2773]

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4725.1025 EXAMINATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1025) to review current rule language.

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4725.1050 [Repealed, 17 SR 2773]

Published Electronically: September 2, 2008

4725.1075 APPLICATION FOR LICENSURE OR REGISTRATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1075) to review current rule language.

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4725.1100 [Repealed, 15 SR 78]

Published Electronically: September 2, 2008

4725.1200 [Repealed, 15 SR 78]

Published Electronically: September 2, 2008

4725.1250 BONDING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1250) to review current rule language.

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4725.1300 LICENSE OR REGISTRATION RENEWAL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1300) to review current rule language.

Published Electronically: September 2, 2008
4725.1310 CERTIFICATION RENEWAL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1310) to review current rule language.

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4725.1325 [Repealed, 17 SR 2773]

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4725.1350 [Repealed, 17 SR 2773]

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4725.1400 [Repealed, 17 SR 2773]

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4725.1500 DISCIPLINARY ACTION; RETURN OF DOCUMENTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1500) to review current rule language.

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4725.1600 REAPPLICATION AFTER CERTIFICATION, LICENSE, OR REGISTRATION REVOCATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1600) to review current rule language.

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4725.1650 CONTINUING EDUCATION REQUIREMENTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1650) to review current rule language.

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4725.1675 CRITERIA FOR CONTINUING EDUCATION.

A continuing education activity must meet the criteria in items A to E for credit to be given.
A. The activity must be related to wells and or borings, drilling technology, groundwater contamination, health aspects of water quality, groundwater monitoring, geology, hydrology, well or boring construction and or sealing, water systems and or water treatment, geothermal systems, dewatering, elevators, or other subjects approved by the commissioner.

B. The activity must have a specific, written objective that describes expected outcomes for the participant.

C. The activity must be presented by a person knowledgeable about recent developments in the subject. The person's qualifications must be documented by either specialized training in the subject matter or work experience in the subject area.

D. The activity must be at least one contact hour as defined in part 4725.0100, subpart 24c.

E. The activity must document participation, including but not limited to earned credits and verification of attendance. Program sponsors shall maintain attendance sheets for two years.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621

History: 15 SR 78; 33 SR 211

Published Electronically: September 2, 2008

4725.1685 ADVISORY COUNCIL REVIEW OF CONTINUING EDUCATION PROGRAMS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1685) to review current rule language.

Published Electronically: September 2, 2008

4725.1700 PLACEMENT OF DECALS AND LICENSE OR REGISTRATION NUMBER.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1700) to review current rule language.

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4725.1800 DRILLING MACHINE AND HOIST REGISTRATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1800) to review current rule language.

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4725.1810 PERMITS AND NOTIFICATIONS, GENERAL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1810) to review current rule language.

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PERMITS AND NOTIFICATIONS

4725.1820 NOTIFICATION FOR CONSTRUCTION OF WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1820) to review current rule language.

Published Electronically: September 2, 2008

4725.1825 DEWATERING WELL CONSTRUCTION NOTIFICATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1825) to review current rule language.

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4725.1830 MONITORING WELL CONSTRUCTION PERMIT.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1830) to review current rule language.

Published Electronically: September 2, 2008

4725.1831 GROUNDWATER THERMAL EXCHANGE DEVICE PERMITS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1831) to review current rule language.

Published Electronically: April 1, 2016

4725.1832 NOTIFICATION FOR WELL SEALING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1832) to review current rule language.

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4725.1833 BORED GEOTHERMAL HEAT EXCHANGER CONSTRUCTION PERMITS.

This part applies to the construction of bored geothermal heat exchangers, including bored geothermal heat exchanger piping installed in a boring for thermal conductivity testing.

A. A bored geothermal heat exchanger must not be constructed, or have piping installed or removed below the frost line, until a permit has been issued by the commissioner to the well contractor or limited well/boring contractor licensed to construct bored geothermal heat exchangers contractor.

B. The well contractor or bored geothermal heat exchanger contractor must submit to the commissioner a bored geothermal heat exchanger permit application on a form provided by the commissioner. The application must be legible and signed by the well contractor or bored geothermal heat exchanger contractor and the property owner or property owner’s agent. The application must include:

C. A permit application must be completed for each bored geothermal heat exchanger and must include:

(1) the name and license number of the well contractor or bored geothermal heat exchanger contractor;
(2) the name and address of the owner of the property on which the bored geothermal heat exchanger will be installed;
(3) the township number, range number, section and one quartile, and the property street address if assigned, of the proposed bored geothermal heat exchanger;
(4) a plan diagram showing the location of the bored geothermal heat exchanger borings, property lines, and structures on the property;
(5) the geological materials expected to be encountered by the borings;
(6) the number, diameter, and depth of all bore holes drilled to install the bored geothermal heat exchanger piping;
(7) the grout materials and grouting method;
(8) the type of heat transfer fluid to be used; and
(9) the system operating pressure.

C. The well contractor or bored geothermal heat exchanger contractor must inform the commissioner of the proposed construction starting time 24 hours before starting construction of bored geothermal heat exchanger borings. The information must be reported by telephone, facsimile, electronically, or in person between the hours of 8:00 a.m. and 4:30 p.m. Monday through Friday, excluding holidays.

D. The bored geothermal heat exchanger must be constructed within 18 months of the date the permit is issued.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.122; 144.383; 157.04; 157.08; 157.09; 157.13

History: 17 SR 2773; 18 SR 1222; 25 SR 1207; 33 SR 211; L 2013 c 108 art 12 s 108; L 2014 c 275 art 1 s 136

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4725.1835 ELEVATOR BORING CONSTRUCTION PERMITS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1835) to review current rule language.

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4725.1836 NOTIFICATION AND PERMIT FEES.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1836) to review current rule language.

Published Electronically: September 2, 2008

4725.1837 EXCEPTION TO NOTIFICATION AND PERMIT REQUIREMENTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725) to review current rule language.

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4725.1838 EMERGENCY NOTIFICATIONS AND PERMITS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1838) to review current rule language.

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4725.1840 UNSUCCESSFUL COMPLETION OF A WELL OR BORING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1840) to review current rule language.

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4725.1842 APPROVAL OF CONSTRUCTION PERMITS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1842) to review current rule language.

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4725.1845 DENIAL OF CONSTRUCTION PERMIT APPLICATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1845) to review current rule language.
4725.1848 WELL MAINTENANCE PERMITS.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1848) to review current rule language.*

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4725.1849 PROPERTY OWNER OR LESSEE DRIVE-POINT WATER-SUPPLY WELL CONSTRUCTION NOTIFICATION.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1849) to review current rule language.*

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4725.1850 [Repealed, 15 SR 78]

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4725.1851 WELL AND BORING RECORDS.

Subpart 1. General. A licensee, registrant, or property owner or lessee for a well constructed according to Minnesota Statutes, section 103I.205, subdivision 4, paragraph (e), clause (1), must submit an accurate, verified, legible written record of well or boring construction or sealing on forms provided by the commissioner, or in a format approved by the commissioner, containing the information in subparts 2 to 4 within 30 days after completion of the work. A written construction record is not required for any well or boring sealed within 30 days of the time construction began and for which a sealing record is submitted.

A. A new or amended record is required if a notification or permit is required under parts 4725.1820 to 4725.1838.

B. The licensee or registrant must furnish the owner or owner's agent one copy, retain one copy, and submit the remaining copies to the commissioner, except that where a community health board has been delegated authority under Minnesota Statutes, section 103I.111, the remaining copies must be submitted to the delegated program.

C. A single record may be used to report more than one temporary monitoring well, dewatering well, or environmental bore hole if all the wells or borings on the record are located on a continuous parcel of property, the well or boring depths do not vary by more than 25 feet, and the wells or borings terminate in the same geologic formation. All wells or borings must be of the same type. A map must be attached to the record containing multiple wells or borings, showing all well or boring unique numbers and locations with distances and directions in relation to recognizable landmarks.

D. All depth measurements must be reported from the established ground surface.
Subp. 2. **Construction records.** Construction records for wells and borings must be completed on a form provided by the commissioner and must contain the information in subpart 3, items A to F, and the following information:

A. intended use;  
B. depth;  
C. drilling method;  
D. casing material, diameter, and depth;  
E. bore hole diameters and depths;  
F. gravel pack and screen type and depth interval, or open hole interval;  
G. static water level;  
H. type, amount, and intervals of grout or sealing materials;  
I. wellhead description including pitless adapter manufacturer and model if installed, and type of casing protection if installed;  
J. date of completion;  
K. pump and pumping equipment description;  
L. description of the geological materials penetrated by the well or boring using terms in subpart 4;  
M. hydrofractured interval if hydrofractured; and  
N. drilling fluid used; and  
O. for bored geothermal heat exchangers, the following additional information must be provided either on the commissioner’s form or on an accompanying document:  
   1. the location where each pipe loop enters the drilled hole must be shown on a scaled map with angles and directions from surveyed property corners, a permanent benchmark, or the corner of a permanent structure;  
   2. for bored geothermal heat exchanger piping installed using directional drilling technology, a scaled map showing the location of the entire length of each pipe loop and a cross-sectional profile showing the depth profile of the pipe loops;  
   3. GPS coordinates for the location where each pipe loop enters the drilled hole, or GPS coordinates marking the corners or perimeter of the loop field;  
   4. The number of pipe loops in each bore hole; and  
   5. The results of the required pressure test.

Subp. 3. **Sealing record.** A sealing record must be submitted for all wells and borings sealed. The sealing record must contain the following information:

A. name and address of the property owner, and the well owner if different;  
B. name, license or registration number of the contractor doing the work, name of the driller performing the work, and the signature of the certified representative;  
C. date work was completed;  
D. the county, township, range, section and three quartiles, and the property street address, if assigned, of the well or boring;  
E. a map showing the well or boring location with distances and directions in relation to recognizable landmarks;
F. for records submitted under subpart 1, item C, the location data at the center of the project, the number of wells or borings included on the record, and a sketch map showing the location of each well or boring;

G. a description of the geological materials penetrated by the well or boring or a description of material penetrated by the nearest well or boring for which records are available, using terms in subpart 4;

H. the original well or boring depth, if known, and current well or boring depth;

I. the approximate date of construction;

J. the grout or sealing materials, quantities, and intervals;

K. the casing type, diameter, and depth if present;

L. the screen or open hole depth interval if present;

M. a description of any obstruction or pump, if present;

N. the method of sealing the annular space around the casing, if present; and

O. a description of the wellhead completion before sealing was performed.

Subp. 4. Geologic materials. The geological materials penetrated in drilling a well or boring must be reported. The person completing the record must include the rock and unconsolidated material types, color, and relative hardness. The grain size must be reported for unconsolidated materials and may be based on field observation without technical size measurement. Geological materials must be described using the terms in items A and B, terms contained in the Dictionary of Geological Terms, Third Revision, by the American Geological Institute, or ASTM Standard D2487-00.

No amendments were made to the types of unconsolidated materials or rock, which made up items A. and B., respectively. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1851) to review current rule language.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13

History: 17 SR 2773; 33 SR 211; L 2015 c 21 art 1 s 109
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4725.1855 CUTTING FORMATION SAMPLES.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.1855) to review current rule language.

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4725.1860 [Repealed, 17 SR 2773]

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WELL AND BORING GENERAL CONSTRUCTION AND USE REQUIREMENTS

4725.2010 APPLICABILITY.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2010) to review current rule language.

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4725.2020 INTERCONNECTION OF AQUIFERS PROHIBITED.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2020) to review current rule language.

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4725.2050 USE OF WELLS OR BORINGS FOR DISPOSAL OR INJECTION PROHIBITED.

A well or boring must not be used for disposal or injection of surface water, groundwater, or any other liquid, gas, or chemical, except for groundwater thermal exchange devices, bored geothermal heat exchangers, drilling fluids, vertical turbine prelubrication water, treatment chemicals, priming water, water used for hydrofracturing, and water used for disinfection according to parts 4725.1831, 4725.1833, 4725.2950, 4725.3250, 4725.3725, 4725.5050, 4725.5475, and 4725.5550. This does not prohibit the injection of air for drilling, development, or sparging.

A. Water used to cool parts of engines, air compressors or other equipment, or air conditioning equipment must not be returned to a well or any part of a potable water system except if permitted as a groundwater thermal exchange device under part 4725.1831 and Minnesota Statutes, section 103I.621.

B. A well may be used for the injection of water to conduct a slug test if the injected water was originally taken from that well or is potable water.
4725.2100 [Repealed, 17 SR 2773]

Published Electronically: September 2, 2008

4725.2150 REQUIRED DISTANCE FROM GAS PIPES, LIQUID PROPANE TANKS, AND ELECTRIC LINES.

Subpart 1. General distance. The minimum isolation distances in item A or B must be maintained during construction, repair, or sealing of a well or boring, and installation of a pipe with flammable or volatile gas, an overhead or underground electric transmission, distribution, service, supply, feeder, branch, or conductor line hereafter called "electric line" or "line," or a liquid propane tank. The distances are measured horizontally from the closest part of the well or boring to the closest part of the pipe, tank, or line; or closest part of the vertical projection on the earth of an overhead or buried pipe, tank, or line. The minimum isolation distance between a well or boring and a pipe with flammable or volatile gas, an electric line, or a liquid propane tank is:

A. ten feet; or
B. five feet if:
   (1) the person constructing the well or boring, or the person installing the pipe, line, or tank, marks the well or boring with a permanent sign warning of the location of the electric line, liquid propane tank, or gas pipe; and
   (2) during construction or sealing of the well or boring:
      (a) the electric line has been de-energized and visibly grounded, or insulating barriers not a part of, or an attachment to, the equipment or machinery have been erected to prevent physical contact with the line during well or boring construction; and
      (b) the propane tank does not contain flammable or volatile gas.

Subp. 2. [Repealed, 33 SR 211]

Subp. 3. Exceptions. Subpart 1 does not apply to:

A. an electrical service line for the well or boring;
B. a television, fiber optic, or other low voltage electric line with a voltage less than 50 volts;
C. a temporary liquid propane tank used during the construction, repair, or sealing of a well or boring;
D. an overhead electric line when the repairing or sealing of a well or boring does not involve the use of a drilling machine or hoist; or
E. a buried electric line or buried gas pipe when the repairing or sealing of a well or boring does not involve excavation; or
F. a buried electric line or gas pipe when a non-vertical bored geothermal heat exchanger boring is installed using directional drilling technology, provided that:
   (1) the notice of excavation and location of buried utilities are completed in accordance with Minnesota Statutes, chapter 216D, and
   (2) the point where the drill bit penetrates the ground surface complies with the isolation distances specified in subpart 1.

The requirements of this part are minimum standards, and do not exempt persons from more restrictive requirements of the Occupational Safety and Health Administration.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13
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4725.2175 LOCATION OF WELL OR BORING WITHIN BUILDING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2175) to review current rule language.

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4725.2185 DISTANCE FROM A BUILDING.

A minimum horizontal isolation distance of three feet must be maintained between a well or boring and the farthest exterior projection of a building, including the walls, roofs, decks, overhangs, and other permanent structures unless the well or boring is located in a building constructed according to part 4725.2175. A building, deck, or other permanent structure, except a well house, must not be built to enclose a well or boring. The well or boring must be accessible for repair and sealing. Environmental bore holes and monitoring wells are exempt from this subpart if sealed within 72 hours of the time construction begins on the well or boring. A directionally drilled bored geothermal heat exchanger is exempt from this provision if constructed according to part 4725.7050, subpart 3.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13
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4725.2200 [Repealed, 17 SR 2773]

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4725.2250 GENERAL CASING REQUIREMENTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2250) to review current rule language.

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4725.2300 [Repealed, 17 SR 2773]

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4725.2350 STEEL CASING REQUIREMENTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2350) to review current rule language.

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4725.2400 [Repealed, 17 SR 2773]

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4725.2450 [Repealed, 33 SR 211]

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4725.2500 [Repealed, 17 SR 2773]

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4725.2550 PLASTIC CASING AND COUPLING REQUIREMENTS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2550) to review current rule language.

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4725.2600 [Repealed, 17 SR 2773]

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4725.2650 PLASTIC CASING INSTALLATION.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2650) to review current rule language.

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4725.2700 [Repealed, 17 SR 2773]

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4725.2750 SCREENS; SCREEN LEADERS, RISERS, AND SUMPS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2750) to review current rule language.

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4725.2800 [Repealed, 17 SR 2773]

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4725.2850 GRAVEL PACKS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2850) to review current rule language.

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4725.2900 [Repealed, 17 SR 2773]

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4725.2950 DRILLING FLUIDS.

Subpart 1. **Water.** Water used for drilling, development, hydrofracturing, sealing, repair, or rehabilitation, other than water from the well or boring itself, must:

A. come from a potable water system or from a well or boring of similar use and construction;
B. contain a free chlorine residual at all times, except for monitoring wells and remedial wells where chlorine will interfere with water quality analysis or remediation; and
C. be conveyed and stored in clean, sanitary tanks and water lines.

Subp. 2. **Drilling additives.** Drilling additives, including bentonite, must meet the requirements of ANSI/NSF Standard 60-2003-2016 as determined by a person accredited by the ANSI under...
ANSI Standard Z34.1-1993. A drilling additive is a substance added to the air or water used in the fluid system of drilling a well or boring.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13

History: 17 SR 2773; 33 SR 211

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4725.2975 DISPOSAL OF MATERIALS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.2975) to review current rule language.

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4725.3000 [Repealed, 8 SR 1625]

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4725.3050 GROUTING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3050) to review current rule language.

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4725.3100 [Repealed, 17 SR 2773]

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4725.3150 CASING CONNECTIONS AND CAPS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3150) to review current rule language.

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4725.3200 [Repealed, 17 SR 2773]

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4725.3250 PUMPS AND PUMPING EQUIPMENT.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3250) to review current rule language.

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4725.3300 [Repealed, 17 SR 2773]

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4725.3350 INTERCONNECTIONS AND CROSS CONNECTIONS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3250) to review current rule language.

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4725.3400 [Repealed, 17 SR 2773]

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4725.3450 FLOWING WELL OR BORING.

Subpart 1. **General construction; flowing well or boring.** A well or boring from which groundwater flows above the established ground surface without pumping must be constructed to prevent erosion of the aquifer and the confining layer. Casing must be installed into the flowing aquifer to prevent water flowing up the outside of the casing. The requirements in this part are in addition to other requirements of this chapter.

Subp. 1a. **Low flow and low pressure.** A flowing well or boring that flows 70 gallons per minute or less, and that has an artesian pressure ten pounds per square inch or less, must be constructed by either:

A. drilling a bore hole larger than the casing into the flowing aquifer, installing casing into the flowing aquifer, and grouting the annular space surrounding the casing with neat-cement grout or cement-sand grout from the bottom of the casing to the base of the pitless adapter or unit, or to the established ground surface according to part 4725.3050; or

B. driving steel casing with welded or threaded and coupled joints into the flowing aquifer; or

C. for a bored geothermal heat exchanger, grouting the annular space surrounding the bored geothermal heat exchanger piping with neat-cement grout or cement-sand grout from the bottom of the bore hole to the established ground surface or upper termination of the bored geothermal heat exchanger piping.
Subp. 2. **High flow, high pressure, or special construction area.**

A. A well or boring, including a bored geothermal heat exchanger boring, must be constructed according to the requirements in this subpart when:
   1. the artesian flow rate at the established ground surface is greater than 70 gallons per minute;
   2. the artesian pressure at the established ground surface exceeds ten pounds per square inch; or
   3. the commissioner designates an area where the use of standard construction techniques have resulted in uncontrolled flows, or where hydrogeologic conditions such as eroded or unstable confining layers require special construction to successfully complete a well or boring and confine the artesian pressure.

B. A well or boring meeting the criteria in item A must be constructed by:
   1. installing an outer steel casing into, but not through, the confining layer overlying the flowing aquifer, except that the outer casing may terminate in a competent bedrock above the confining layer. The outer steel casing is not required to meet the material specifications for casing in part 4725.2350 if the casing is of sufficient strength to withstand the structural load imposed by conditions both inside and outside the well or boring. The casing must be installed by drilling a bore hole a minimum of 3.0 inches larger, or 3.5 inches larger for casings deeper than 100 feet and larger than 12 inches inside diameter, than the outside diameter of the casing or couplings, whichever is larger, into the confining layer overlying the flowing aquifer. The bore hole must not penetrate the entire thickness of the confining layer. Steel casing must be installed into the confining layer and neat-cement grout or cement-sand grout must be pumped into the annular space surrounding the casing from the bottom of the casing to the established ground surface or base of the pitless adapter or unit;
   2. drilling a bore hole a minimum of 3.0 inches larger, or 3.5 inches larger for casings deeper than 100 feet and larger than 12 inches inside diameter, than the outside diameter of the inner casing or couplings through the confining layer into the flowing aquifer;
   3. installing an inner casing into the flowing aquifer in accordance with part 4725.2250, subpart 8; and
   4. grouting the annular space surrounding the inner casing with neat-cement grout or cement-sand grout from the bottom of the casing to the established ground surface or base of the pitless adapter or unit.

Grouting must comply with part 4725.3050.

Subp. 3. [Repealed, 33 SR 211]

Subp. 4. **Flow control.** A flowing well or boring must be provided with flow control capable of stopping all flow, consisting of a valved pipe connection, watertight pump connection, specially
designed pitless unit, or a receiving tank set at an altitude corresponding to that of the artesian head.

Subp. 5. **Overflow discharge.** A water discharge from a flowing well or boring that disposes of water to the surface, a surface water body, sewer, or subsurface must:

A. be protected with an air gap according to part 4715.2010;
B. have a valve or other mechanism as required in subpart 4 capable of stopping all flow; and
C. have the outlet screened with a noncorrosive mesh screen having openings of 1/16 inch or less.

Subp. 6. **Temporary wells and borings.** Temporary wells and borings that flow, and are sealed within 30 days of the time construction begins, are not required to be constructed according to this part, but must be constructed to prevent erosion of the aquifer, drill hole, or surrounding property, and must be sealed to stop all flow with neat-cement grout or cement-sand grout according to part 4725.3850.

**Statutory Authority:** MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13

**History:** 17 SR 2773; 33 SR 211

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4725.3500 [Repealed, 17 SR 2773]

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4725.3550 WELL LABEL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes ([https://www.revisor.mn.gov/rules/?id=4725.3550](https://www.revisor.mn.gov/rules/?id=4725.3550)) to review current rule language.

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4725.3600 [Repealed, 17 SR 2773]

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4725.3650 SPECIAL WELL AND BORING CONSTRUCTION AREAS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes ([https://www.revisor.mn.gov/rules/?id=4725.3650](https://www.revisor.mn.gov/rules/?id=4725.3650)) to review current rule language.
4725.3725 CHEMICAL TREATMENT AND REHABILITATION.

Subpart 1. **Treatment chemicals.** Chemicals placed in a well or boring to increase the yield, remove or treat contaminants or objectionable tastes or odors, or rehabilitate the well or boring must meet the requirements of ANSI/NSF Standard 60-2003e 2016 as determined by a person accredited by the ANSI under ANSI Standard Z34.1-1993. Sodium or calcium hypochlorite may be used if registered by the United States Environmental Protection Agency according to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), section 3(c)(7)(A), as an antimicrobial pesticide for use in potable water. Treatment chemicals must be neutralized or removed from the well, boring, and any connected piping systems prior to use of the well or boring. This part does not apply to chlorine or other treatment chemicals added to a water distribution system, or to a drilling additive used according to part 4725.2950.

Subp. 2. **Treatment with an acid.**

A. Before treating a well or boring with an acid, all confined spaces enclosing the well or boring must be blown out with fresh air before entry and a supply of fresh air must be provided during occupancy. When there is a question of adequate fresh air supply, a self-contained breathing apparatus must be worn.

B. The pH (hydrogen ion concentration) of the water must be measured prior to treatment.

C. The well or boring must not be placed back into service until the pH is within one pH unit of the pretreatment value.

**Statutory Authority:** MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621

**History:** 33 SR 211

4725.3750 REPAIR, CORRECTION, OR SEALING OF WELLS AND BORINGS.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3750) to review current rule language.*

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4725.3800 [Repealed, 17 SR 2773]

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4725.3850 SEALING WELL OR BORING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3850) to review current rule language.

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4725.3875 RESPONSIBILITY FOR SEALING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.3875) to review current rule language.

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4725.3900 [Repealed, 17 SR 2773]

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4725.4000 [Repealed, 17 SR 2773]

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WATER-SUPPLY WELLS

4725.4050 APPLICABILITY.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4050) to review current rule language.

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4725.4100 [Repealed, 17 SR 2773]

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4725.4150 BENTONITE DRILLING FLUIDS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4150) to review current rule language.

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4725.4200 [Repealed, 17 SR 2773]

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4725.4250 LIMESTONE OR DOLOMITE WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4250) to review current rule language.

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4725.4300 [Repealed, 17 SR 2773]

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4725.4350 WATER-SUPPLY WELL DISTANCE FROM WATER BODIES; PROTECTIONS IN

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4350) to review current rule language.

Published Electronically: September 2, 2008

4725.4400 [Repealed, 17 SR 2773]

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4725.4450 WATER-SUPPLY WELL DISTANCES FROM CONTAMINATION.

Subpart 1. Isolation distances. A water-supply well must be located where there is optimum surface drainage and at the highest practical elevation. Whenever possible, water-supply wells should not be located down slope or down gradient of a contamination source. A water-supply well must be constructed as far as practical from a contamination source, but no less than the distances in this part.

The isolation distances in this part are minimum distances measured horizontally from the closest part of the upper termination of the water-supply well casing to the closest part of the contamination source, or the vertical projection of the contamination source on the established ground surface, whichever is closer.

Where this chapter establishes a minimum regulatory volume of a liquid, the volume of multiple tanks, each below the minimum, are not additive, unless the tanks are interconnected without backflow protection.
The minimum isolation distances must be maintained between a new well and a source of contamination no longer in use, unless all contaminants have been removed from the source, and visibly contaminated soils have been removed.

A contamination source must not be placed, constructed, or installed any closer to a water-supply well than the distances in this part.

A water-supply well must be no less than:

A. 300 feet from:
   (1) the absorption area of a soil dispersal system with an average design flow greater than 10,000 gallons per day;
   (2) a landfill or dump containing mixed municipal solid waste from multiple persons, except for a disposal area of household solid waste from a single residence regulated by item E, subitem (20);
   (3) a permitted demolition debris landfill, except for a disposal area for construction debris or demolition debris regulated by item E, subitem (19);
   (4) a municipal or industrial wastewater rapid infiltration basin;
   (5) a municipal wastewater stabilization pond with 500 or more gallons/acre/day of leakage; and
   (6) a liquid manure storage basin or lagoon that is unpermitted or noncertified according to chapter 7020; except that the minimum distance to a sensitive water-supply well is increased for subitems (1) to (6) to 600 feet as provided in subpart 2;

B. 150 feet from:
   (1) a tank or container holding:
      (a) 25 gallons or more, or 100 pounds or more dry weight, of an agricultural chemical, or an area used to fill or clean agricultural chemical application equipment with these quantities, not protected with safeguards;
      (b) 56 gallons or more, or 100 pounds or more dry weight, of a hazardous substance not protected with safeguards; or
      (c) 1,100 gallons or more of petroleum not protected with safeguards as specified in chapter 7150 or 7151;
   (2) the absorption area of a soil dispersal system serving a facility such as a hospital, nursing home, mortuary, veterinary clinic, health care clinic, or similar facility handling infectious or pathological wastes, except as provided in item A, subitem (1), and except that the minimum distance to a sensitive water-supply well is increased to 300 feet as provided in subpart 2;
   (3) a municipal wastewater stabilization pond with less than 500 gallons/acre/day leakage, except that the minimum distance to a sensitive water-supply well is increased to 300 feet as provided in subpart 2;
   (4) an industrial wastewater stabilization pond, except that the minimum distance to a sensitive water-supply well is increased to 300 feet as provided in subpart 2;
(5) a municipal or industrial wastewater spray irrigation area, except that the minimum distance to a sensitive water-supply well is increased to 300 feet as provided in subpart 2; and

(6) a liquid manure storage basin or lagoon that does not have a concrete or composite liner, but has an earthen liner that was constructed under a Minnesota Pollution Control Agency permit or is certified according to chapter 7020, except that the minimum distance to a sensitive water-supply well is increased to 300 feet as provided in subpart 2;

C. 100 feet from:

(1) a solid manure storage area not covered by a roof, except that the minimum distance to a sensitive water-supply well is increased to 200 feet as provided in subpart 2;

(2) a safeguarded area used to store agricultural chemicals, or clean or fill agricultural chemical application equipment that is protected with safeguards as defined in parts 1505.3010 to 1505.3150 for bulk pesticides, or with safeguards as specified in standards of the Department of Agriculture for fertilizers under parts 1510.0370 to 1510.0408 and Minnesota Statutes, chapter 18C;

(3) an underground storage tank holding 56 or more gallons, or 100 pounds dry weight, of a hazardous substance, or with more than 1,100 gallons of petroleum, if protected with safeguards as defined in chapter 7150;

(4) an aboveground storage tank with 56 or more gallons, or 100 pounds dry weight, of a hazardous substance, or with more than 1,100 gallons of petroleum, if protected with safeguards as defined in chapter 7151;

(5) a liquid manure storage basin or lagoon with a concrete or composite liner in accordance with chapter 7020, except that the minimum distance to a sensitive water-supply well is increased to 200 feet as provided in subpart 2;

(6) an unroofed animal feedlot holding 300 or more animal units, except that the minimum distance to a sensitive water-supply well is increased to 200 feet as provided in subpart 2;

(7) tanks, vessels, or components of a wastewater treatment unit; and

(8) a pipeline used to transport petroleum or crude oil to a petroleum refinery or distribution center;

D. 75 feet from a cesspool, seepage pit, leaching pit, or dry well, except that the minimum distance to a sensitive water-supply well is increased to 150 feet as provided in subpart 2;

E. 50 feet from:

(1) a safeguarded area used to store agricultural chemicals, or fill or clean agricultural chemical application equipment that is covered with a permanent watertight roof and protected with safeguards as defined in parts 1505.3010 to 1505.3150 for bulk pesticides, or with safeguards as specified in standards of the Department of Agriculture for fertilizers under parts 1510.0370 to 1510.0408 and Minnesota Statutes, chapter 18C;

(2) an animal feedlot holding more than one animal unit, except as provided in item C, subitem (6), and except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(3) a feeding or watering area within a pasture holding more than one animal unit, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(4) an animal or poultry building, including a horse riding arena, holding more than one animal unit, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(5) an interceptor, including a flammable waste or sediment interceptor;
(6) a human grave, mausoleum, or area used to bury more than one animal unit;
(7) the absorption area of a soil dispersal system except as provided in items A, subitem (1), and B, subitem (2), or a privy, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(8) a septic tank, sewage sump except as provided in item G, subitem (1), watertight sewage treatment device except as provided in item C, subitem (7), or watertight sewage holding tank;
(9) a buried storage tank holding between 56 and 1,100 gallons of petroleum;
(10) an unused, unsealed well or boring;
(11) a source of pollution or contamination that may drain into the soil except as provided in this part;
(12) a buried sewer, except as provided in item G, subitem (5), that:
  (a) serves as a collector or municipal sewer;
  (b) is open-jointed; or
  (c) is constructed of materials that do not meet the specifications, methods, and testing protocol in parts 4715.0530 and 4715.2820;
(13) a floor drain, grate, or trough connected to a buried sewer, except as provided in item G, subitem (5);
(14) a watertight sand filter, peat filter, or constructed wetland;
(15) a storage area for bulk road deicing chemicals, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(16) the buried piping of a horizontal ground source closed loop bored geothermal heat exchanger or any other closed loop geothermal heat exchanger, except as provided in item F, subitem (1) and item H, subitem (2);
(17) a sewage, septage, or sludge, land-spreading area, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(18) buried piping from petroleum, agricultural chemical, or hazardous material storage tanks;
(19) a disposal area for construction debris or demolition debris, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(20) a disposal area for household solid waste from a single residence, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(21) a solid waste transfer station, commercial compost site, or scrap yard;
(22) a disposal area for water treatment backwash, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(23) an industrial cooling water pond, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(24) a gray-water dispersal area, except that the minimum distance to a sensitive water-supply well is increased to 100 feet as provided in subpart 2;
(25) an anhydrous ammonia tank;
(26) an animal rendering plant;
(27) multiple tanks or containers of agricultural chemicals, hazardous materials, or hazardous wastes, for residential retail sale or use, each holding less than 56 gallons or 100 pounds dry weight, where the aggregate volume of the tanks and containers exceeds 56 gallons or 100 pounds dry weight;
(28) a water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection;
(29) a storage area for oil-filled electrical transformers; and
(30) an elevator boring, except as provided in item G, subitem (12);

F. 35 feet from:
   (1) the buried piping of a bored geothermal heat exchanger piping or any other closed loop geothermal heat exchanger that is more than 10 feet below the established ground surface, provided that the geothermal heat exchanger conforms to as specified in parts 4725.0100, subpart 49g, and 4725.7050, subpart 1, item G, and
   (2) the ordinary high water level of a stream, river, pond, storm water retention pond, or lake as specified in part 4725.4350, subpart 1;

G. 20 feet from:
   (1) a sewage sump with a capacity of less than 100 gallons which has been successfully tested in accordance with part 4715.2820, subpart 2 or 3, and is constructed according to part 4715.2440, subparts 1 and 4;
   (2) a pit or unfilled space below the established ground surface that is four feet or more in depth, except a basement or building crawl space;
   (3) an in-ground swimming pool;
   (4) a petroleum storage tank that is not buried, holding between 56 and 1,100 gallons;
   (5) a buried sewer serving one building, or two or less single-family residences, constructed of cast iron or plastic pipe according to the material specifications, methods, and testing protocol described in parts 4715.0530 and 4715.2820, subpart 2 or 3, or a floor drain connected to the buried sewer, except for:
      (a) a collector or municipal sewer; or
      (b) a sewer serving a facility such as a hospital, nursing home, mortuary, veterinary clinic, health care clinic, or similar facility handling infectious or pathological wastes;
   (6) a storm water drain pipe eight inches or greater in diameter;
(7) an animal building, feedlot, confinement area, or kennel holding 0.1 to 1.0 animal unit, except that the minimum distance to a sensitive water-supply well is increased to 40 feet as provided in subpart 2;
(8) a buried nonpressurized water supply cistern or reservoir;
(9) a gravel pocket or French drain for clear water drainage;
(10) a portable privy or toilet;
(11) a water treatment backwash holding basin, reclaim basin, or surge tank, and associated piping, with a backflow protected sewer connection; and
(12) an elevator boring conforming to part 4725.7250; and

H. ten feet from:

(1) a frost-proof yard hydrant or discharge of a frost-proof hydrant draining into the soil, a fire hydrant, or a flushing hydrant; and
(2) the horizontal piping of a bored geothermal heat exchanger, or a horizontal ground source closed loop heat exchanger constructed of materials, and using a heat transfer fluid, according to the buried piping of a bored geothermal heat exchanger or any other closed loop geothermal heat exchanger that is 10 feet or less below the established ground surface, provided that the geothermal heat exchanger conforms to part 4725.7050, subpart 1.

Subp. 2. Increased isolation distances for sensitive water-supply wells. The distances in items A to F are exceptions to the isolation distances in subpart 1. The isolation distances in subpart 1 are doubled between a sensitive water-supply well and a contamination source directly entering the soil. A sensitive water-supply well must be located at least:

A. 600 feet from the absorption area of a soil dispersal system with an average design flow greater than 10,000 gallons per day, a landfill or dump containing mixed municipal solid waste from multiple persons, a permitted demolition debris landfill, a municipal or industrial wastewater rapid infiltration basin, a municipal wastewater stabilization pond with 500 or more gallons/acre/day leakage, or a liquid manure storage basin or lagoon that is unpermitted or noncertified according to chapter 7020;
B. 300 feet from the absorption area of a soil dispersal system serving a facility such as a hospital, nursing home, mortuary, veterinary clinic, health care clinic, or similar facility handling infectious or pathological wastes; a municipal wastewater stabilization pond with less than 500 gallons/acre/day leakage; an industrial wastewater stabilization pond; a municipal or industrial wastewater spray irrigation area; or a liquid manure storage basin or lagoon that does not have a concrete or composite liner, but has an earthen liner that was constructed under a Minnesota Pollution Control Agency permit or is certified according to chapter 7020;
C. 200 feet from a manure storage area, a liquid manure storage basin or lagoon with a concrete or composite liner according to chapter 7020, or an unroofed animal feedlot holding 300 or more animal units;
D. 150 feet from a cesspool, seepage pit, leaching pit, or dry well;
E. 100 feet from an animal feedlot holding more than one animal unit except as provided in item C; an animal or poultry feeding or watering area within a pasture holding more than one animal unit; an animal or poultry building including a horse riding arena

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holding more than one animal unit; the absorption area of a soil dispersal system; a
privy; a storage area for road deicing chemicals; a sewage, septage, sludge, or waste
landspreading area; a disposal area for construction or demolition debris; a disposal
area for household solid waste from a single residence; a disposal area for water
treatment backwash; an industrial cooling water pond; a gray-water dispersal area; or
similar contamination source; and
F. 40 feet from an animal building, feedlot, confinement area, or kennel holding 0.1 to 1.0
animal unit.

Subp. 3. Exception for irrigation well and fertilizer chemigation tank. An irrigation well used
only for nonpotable purposes must be at least 20 feet from a fertilizer chemigation supply tank
conforming to the applicable requirements, setbacks, safeguarding, antipollution devices,
purging, and posting requirements of parts 1505.2100 to 1505.2800.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451;
103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.122; 144.383;
157.04; 157.08; 157.09; 157.13
History: 17 SR 2773; 18 SR 1222; 33 SR 211; L 2013 c 108 art 12 s 108; L 2014 c 275 art 1 s 136
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4725.4500 [Repealed, 17 SR 2773]
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4725.4550 MINIMUM PROTECTIVE DEPTH.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes
(https://www.revisor.mn.gov/rules/?id=4725.4550) to review current rule language.

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4725.4650 SEDIMENT IN POTABLE WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes
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4725.4700 [Repealed, 17 SR 2773]
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4725.4750 LEAD PROHIBITION IN POTABLE WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4750) to review current rule language.

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4725.4800 [Repealed, 17 SR 2773]

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4725.4825 NONPOTABLE WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4825) to review current rule language.

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4725.4850 WATER-SUPPLY WELL PITLESS ADAPTER OR PITLESS UNIT, AND WELDED OR THREADED FITTING.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.4850) to review current rule language.

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4725.4900 [Repealed, 17 SR 2773]

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4725.4950 [Repealed, 33 SR 211]

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4725.5000 [Repealed, 17 SR 2773]

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4725.5050 PRIMING WATER-SUPPLY WELL PUMPS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5050) to review current rule language.

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4725.5100 [Repealed, 17 SR 2773]

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4725.5150 WATER-SUPPLY WELL SUCTION LINE.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5150) to review current rule language.

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4725.5200 [Repealed, 17 SR 2773]

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4725.5250 WATER-SUPPLY WELL PUMP DISCHARGE LINES.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5250) to review current rule language.

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4725.5300 [Repealed, 17 SR 2773]

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4725.5350 PRESSURE TANKS FOR WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5350) to review current rule language.

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4725.5400 [Repealed, 17 SR 2773]

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4725.5450 VENTING WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5450) to review current rule language.

Published Electronically: September 2, 2008
4725.5475 HYDROFRACTURING WATER-SUPPLY WELLS.

Subpart 1. Scope. This part applies to hydrofracturing a water-supply well, as defined in part 4725.0100, subpart 30f. A remedial water-supply well, or other well or boring regulated by this chapter, must not be hydrofractured. Hydrofracturing must be done by a well contractor licensed according to Minnesota Statutes, section 103I.525.

Subp. 2. Injection materials, water, and proppants.

A. Water used for hydrofracturing must be potable water containing a chlorine residual. The use of surface water, unless obtained from a public water system, is prohibited.
B. Additives must meet the requirements of ANSI/NSF Standard 60-2003e 2016 as determined by a person accredited by the ANSI under ANSI Standard Z34.1-1993.
C. Proppants may be used to hold the joints and fractures open, and must be inert, clean, and nontoxic materials, including chlorinated, noncalcareous, washed sand.

Subp. 3. Restrictions. The following restrictions apply when hydrofracturing.

A. The upper packer must be a minimum of 50 feet below the established ground surface.
B. Hydrofracturing must not occur inside a casing. The upper packer must be a minimum of ten feet below the lower termination of a casing.
C. Hydrofracturing must only be done in igneous or metamorphic bedrock.
D. A water-supply well must not be hydrofractured unless located according to the isolation distances in parts 4725.4350 and 4725.4450.

Subp. 4. Requirements. The following requirements apply when hydrofracturing. The person hydrofracturing must:

A. remove additives injected during hydrofracturing;
B. disinfect a hydrofractured water-supply well upon completion of hydrofracturing, according to part 4725.5550;
C. collect a water sample from a hydrofractured water-supply well used for drinking or other potable purposes, and test the sample according to part 4725.5650; and
D. complete and submit a well and boring construction record, or amended record, within 30 days of completion of hydrofracturing.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621
History: 33 SR 211
Published Electronically: September 2, 2008

4725.5500 [Repealed, 17 SR 2773]

Published Electronically: September 2, 2008
4725.5550 WATER-SUPPLY WELL DISINFECTION.

Subpart 1. Disinfection procedure. A water-supply well must be disinfected according to this part. A disinfection procedure is presumed adequate when one or more water samples collected as specified in part 4725.5650 indicate the absence of total coliform bacteria.

Subp. 2. Disinfection of new well or pump. A person installing a new well or pump must ensure that the well is pumped until three volumes of the water contained in the well are pumped or until the water is as clear as groundwater conditions allow. After pumping, the person installing a new well or new pumping equipment must disinfect the well and pumping equipment with chlorine at a concentration sufficient to produce at least 50 parts per million of free chlorine in all parts of the well. The chlorine solution must contact the well surfaces above the static water level. The chlorine solution must remain in the well at least two hours before pumping all the chlorinated water from the well and the solution from the distribution system.

Subp. 3. Disinfection during repair or modification. A person repairing or modifying a well or pump must disinfect the well as specified in subpart 2 or disinfect at the start of the repair or reconditioning by applying chlorine at a concentration sufficient to produce 200 parts per million free chlorine in all parts of the well for the period of the well repair or reconditioning operation. Before taking water samples or returning the well to use, all chlorinated water must be pumped from the well and distribution system.

Subp. 4. Disinfection materials. Chlorine materials must meet the requirements of ANSI/NSF Standard 60-2000e-2016 as determined by a person accredited by ANSI under ANSI Standard 234.1-1993 or be registered by the United States Environmental Protection Agency according to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), section 3(c)(7)(A), as an antimicrobial pesticide for use in potable water. Chlorine compounds with additives such as perfumes or algaecides must not be used for disinfection. An alternate disinfection material may be used if the material is a biocide meeting the material and use standards of this part and provides biocidal activity equivalent to the chlorine concentrations and contact times required in this part.

Subp. 5. Chlorine in solid form. Chlorine compounds in solid form used to comply with subparts 2 and 3 must be dissolved in potable water prior to placement in a water-supply well or circulated in the well to contact all well surfaces above the static water level, except that:

A. additional solid chlorine in excess of that necessary to produce the free chlorine required in subpart 2 or 3 may be added; and
B. solid chlorine may be used to disinfect a flowing well by placing the solid in the bottom of the well.

Subp. 6. Remedial well exemption. The requirement to disinfect a water-supply well does not apply to a remedial well if the disinfection will interfere with water quality analysis or create dangerous reactions with contaminants.
Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621

History: 33 SR 211

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4725.5600 [Repealed, 17 SR 2773]

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4725.5650 WATER QUALITY SAMPLES FROM NEWLY CONSTRUCTED POTABLE WATER-SUPPLY WELL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5650) to review current rule language.

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4725.5675 [Repealed, 33 SR 211]

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4725.5750 Dug Water Supply Wells

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5750) to review current rule language.

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4725.5800 [Repealed, 17 SR 2773]

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4725.5825 PUBLIC WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5825) to review current rule language.

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4725.5850 COMMUNITY PUBLIC WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.5850) to review current rule language.

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4725.5900 [Repealed, 17 SR 2773]

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4725.6000 [Repealed, 17 SR 2773]

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4725.6050 REMEDIAL WATER-SUPPLY WELLS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.6050) to review current rule language.

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4725.6100 [Repealed, 17 SR 2773]

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DEWATERING WELLS

4725.6150 DEWATERING WELL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.6150) to review current rule language.

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4725.6400 [Repealed, 17 SR 2773]

**MONITORING WELLS**

4725.6450 APPLICABILITY AND USE.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes ([https://www.revisor.mn.gov/rules/?id=4725.6450](https://www.revisor.mn.gov/rules/?id=4725.6450)) to review current rule language.*

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4725.6650 CONSTRUCTION OF MONITORING WELLS.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes ([https://www.revisor.mn.gov/rules/?id=4725.6650](https://www.revisor.mn.gov/rules/?id=4725.6650)) to review current rule language.*

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4725.6750 [Repealed, 17 SR 2773]

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4725.6755 PROTECTION OF MONITORING WELLS.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes ([https://www.revisor.mn.gov/rules/?id=4725.6755](https://www.revisor.mn.gov/rules/?id=4725.6755)) to review current rule language.*

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4725.6775 REPAIR; SEALING OF MONITORING WELL.

*No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes ([https://www.revisor.mn.gov/rules/?id=4725.6775](https://www.revisor.mn.gov/rules/?id=4725.6775)) to review current rule language.*
4725.6800 [Repealed, 17 SR 2773]

Published Electronically: September 2, 2008

4725.6850 AT-GRADE MONITORING WELL.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.6850) to review current rule language.

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4725.6900 [Repealed, 17 SR 2773]

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4725.7000 [Repealed, 17 SR 2773]

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4725.7050 BORED GEOTHERMAL HEAT EXCHANGERS.

Subpart 1. Construction. A bored geothermal heat exchanger must be constructed according to the general construction standards in parts 4725.2010 to 4725.3875 and the provisions in this part.

A. Bored geothermal heat exchanger piping must be a minimum 160 psi pressure-rated, SDR 11 high density polyethylene, or cross-linked polyethylene that meets the following requirements: meeting ASTM Standard D3035-03a.

   (1) For high density polyethylene:
       (a) the walls of the pipe must be SDR 11 or thicker;
       (b) pipe must meet ASTM Standard D3035-15 or ASTM Standard F714-13;
       (c) pipe connections must be made with socket fusion, butt fusion, or electro-fusion joining methods that meet ASTM Standard F2620-13 or ASTM Standard F1055-16; and
       (d) fittings must be manufactured in accordance with ASTM Standard D2683-14.

   (2) For cross-linked polyethylene:
       (a) pipe must be manufactured by the high pressure peroxide method and designated as PEXa;
       (b) pipe must meet ASTM Standard F876-15a and ASTM Standard F877-11a;
       (c) all components of the PEXa system must be from the same manufacturer;
       (d) a fitting for a PEXa system must not be buried in a pipe loop boring or between a pipe loop boring and the heat pump unit, unless the fitting is
located in a vault or other structure accessible from the ground surface or floor of the building; and

(e) fittings must meet ASTM Standard F2080-16.

(3) High density polyethylene and cross-linked polyethylene pipe must have a minimum pressure rating of 160 psi.

B. Connections to bored geothermal heat exchanger piping must use socket fusion or butt fusion joining methods.

C. The licensee must complete a successful pressure test of the bored geothermal heat exchanger piping after the piping is installed in the bore hole(s). Pipe must be pressure tested with air or potable water for 15 minutes at a pressure of 1.5 times the system operating pressure or 75/100 pounds per square inch, whichever is greater, after installation in the bore hole. The pressure must remain constant for 30 minutes without adding additional water.

D. The annular space between the bored geothermal heat exchanger piping and the bore hole must be filled with grouted with neat-cement grout or cement-sand grout in bedrock, and neat-cement grout, cement-sand grout, thermally enhanced bentonite grout, or bentonite grout in unconsolidated materials according to the procedures in part 4725.3050, subpart 2, and according to the procedures in part 4725.3450 for a bored geothermal heat exchanger boring from which groundwater flows above the established ground surface. The annular space must be filled with: Thermally enhanced bentonite grout must consist of a fluid mixture of not more than 17.5 gallons of water, not more than 200 pounds of sand with 80 percent or more of the sand smaller than 0.0117 inch (passing U.S. Sieve #50), and a minimum of 50 pounds of bentonite.

(1) neat-cement grout or cement-sand grout in bedrock;

(2) neat-cement grout or cement-sand grout in a boring from which groundwater flows above the established ground surface; or

(3) neat-cement grout, cement-sand grout, bentonite grout, or thermally enhanced bentonite grout in unconsolidated materials. Thermally enhanced bentonite grout must consist of:

(a) a maximum of 17.5 gallons of water per 50 pounds of bentonite, and

(b) thermal enhancement material, including:

I. A maximum of 200 pounds of sand per 50 pounds of bentonite, with 80 percent or more of the sand smaller than 0.0117 inch (passing U.S. Sieve #50), and

II. a maximum of 20 pounds of graphite that meets the ANSI/NSF Standard 60-2016 requirements per 50 pounds of bentonite.

E. Only food-grade or USP grade propylene glycol must be used as heat transfer fluid. No other materials or additives must be used except for potable water. A permanent sign must be attached to the heat pump specifying that only approved heat transfer fluids must be used. Heat transfer fluids must be propylene glycol or ethanol that meets the following requirements:

(1) Propylene glycol must be food-grade or USP grade;

(2) A propylene glycol with additives, including corrosion inhibitors and dyes, shall be approved by the commissioner if documentation is provided to the
(3) Ethanol products must be designed by the manufacturer for use in bored geothermal heat exchanger systems. Ethanol products must not be used unless approved in writing by the commissioner. A complete list of product ingredients and concentrations must be submitted for review.

(4) Ethanol may be used in an ethanol-water solution of not more than twenty (20) percent ethanol by volume. Ethanol concentrates used in preparation of the heat transfer fluid must be diluted to not more than 20 percent ethanol by volume before being brought into a building where the heat transfer fluid is to be used.

(5) The storage, handling and use of ethanol is subject to the safety precautions and procedures specified by the ethanol manufacturer, the applicable requirements of chapters 1305 and 7511, and NFPA Standard 30: Flammable and Combustible Liquids Code, 2015 Edition.

(6) No other fluids or additives may be used except for potable water.

F. A permanent sign must be attached to the heat pump identifying the heat transfer fluid in the bored geothermal heat exchanger and specifying that only heat transfer fluids approved in this part may be used.

G. Water make-up lines to the bored geothermal heat exchanger must be protected with backflow prevention according to parts 4715.2010 to 4715.21794714.0602 and 4714.0603.

H. The isolation distance between a water-supply well and a bored geothermal heat exchanger constructed according to this part must be no less than the distances specified in part 4725.4450, subpart 1, items F and H35 feet from a water-supply well. The horizontal piping must be no less than ten feet from a water-supply well.

Subp. 2. Marking locations. The locations of all buried bored geothermal heat exchanger piping from the point where the pipe loop exits the bore hole to the point where the pipe is exposed above the ground surface or floor of a building must be marked by one of the following methods:

A. Tracer wire;
B. Underground marking tape detectable from the ground surface; or
C. A ferromagnetic metal marker, detectable from the ground surface, located above the point where the pipe loop exits the bore hole.

Subp 3. Separation under buildings. A bored geothermal heat exchanger boring installed using directional drilling technology that extends under a building or within three feet horizontally of the farthest exterior projection of the building must be located a minimum of ten feet below the lowest part of the building, including the foundation and footings. Supply-return piping that is plumbed through the building wall or floor is exempt from this requirement.

Subp 4. Isolation distances from certain contaminant sources. The point where the drill bit penetrates the ground surface for a geothermal heat exchanger boring must be located at least 10 feet horizontally from a contaminant source that has contaminants directly entering the soil, including:

This document may be made accessible upon request to health.wells@state.mn.us.
A. the absorption area of a soil dispersal system;
B. animal feedlot, confining area, or feeding or watering area;
C. cesspool;
D. landspreading area for sewage, septage, or sludge;
E. manure basin, lagoon, or storage area;
F. rapid infiltration basin;
G. seepage pit, leaching pit, or dry well; or
H. wastewater spray irrigation area.

Subp. 5. Bored geothermal heat exchangers onto the property of another. Bored geothermal heat exchanger piping must not be installed on or under property adjacent to the property identified in the approved permit without the adjacent property owner’s written consent or other legal authority.

Subp. 6. Accessibility. The ends of each pipe loop must be accessible within a building or buried no deeper than 10 feet below the ground surface. The buried ends of a pipe loop must not be built over or otherwise made inaccessible.

Subp. 7. Pipe loop not connected to a geothermal heat exchanger system. A pipe loop that is not connected to a geothermal heat exchanger system, such as a loop installed for thermal conductivity testing, must be protected by:

A. extending the ends of the pipe loop to at least one foot above the ground surface;
B. encasing the ends of the pipe loop in an ASTM Schedule 40 steel or plastic outer protective pipe that is at least four inches in diameter and extends at least one foot above and two feet below the ground surface; and
C. covering the outer protective pipe with an overlapping cap or cover.

Subp. 8. Sealing of bored geothermal heat exchangers. When sealing all or part of a bored geothermal heat exchanger:

A. all heat transfer fluid must be removed from the bored geothermal heat exchanger piping that is to be sealed;
B. the heat transfer fluid must be contained and recycled or disposed in accordance with applicable federal, state and local requirements;
C. the ends of each pipe loop must be accessed and grouted by pumping grout through a tremie pipe inserted to within 10 feet of the bottom of the loop, or by pumping grout into one end of the loop until grout flowing from the other end of the loop meets the minimum specifications and densities in part 4725.0100, subparts 21d, 22b, or 30n;
D. the portion of the piping in unconsolidated geologic materials must be filled with bentonite grout, neat-cement grout, or cement-sand grout; and
E. the portion of the piping in bedrock must be filled with cement-sand grout or neat-cement grout.

Subp. 28. Notice of loss or leak. The owner of the bored geothermal heat exchanger system must:
A. notify the commissioner of heat loop leakage from the system piping or loss of pressure in the system within 24 hours after the owner becomes aware of the loss or leak; and
B. Notify the Minnesota Duty Officer of a bored geothermal heat exchanger leak in accordance with Minnesota Statutes, section 115.061.

Statutory Authority: MS s 103I.101; 103I.111; 103I.205; 103I.221; 103I.301; 103I.401; 103I.451; 103I.501; 103I.525; 103I.531; 103I.535; 103I.541; 103I.621; 144.05; 144.12; 144.383; 157.04; 157.08; 157.09; 157.13

History: 17 SR 2773; 33 SR 211; L 2013 c 108 art 12 s 108; L 2014 c 275 art 1 s 136
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4725.7100 [Repealed, 17 SR 2773]
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4725.7200 [Repealed, 17 SR 2773]
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4725.7250 ELEVATOR BORINGS.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.7250) to review current rule language.

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ENVIRONMENTAL BORE HOLES

4725.7450 ENVIRONMENTAL BORE HOLES.

No proposed amendments are within this rule part. Refer to The Office of the Revisor of Statutes (https://www.revisor.mn.gov/rules/?id=4725.7450) to review current rule language.

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